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Case Report

An unusual metastasis of lung cancer: a single vertebra

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Abstract

Secondary oncologic emergencies due to the treatment of the malignancy or the malignancy itself are common reasons for admittance to emergency services. If a correct diagnosis cannot be achieved in time, there may be serious problems threatening the patient's life. Spinal cord compression (SCC) is one of these complications, but it can be treated effectively. This condition is rarely seen in patients who have a malignancy; 95% of the cases show invasion of the vertebrae. A single vertebra invasion is rare, whereas multiple vertebrae invasion is seen frequently. Reasons for patient's admission to emergency services are pain, local mass, or motor dysfunction, such as paraplegy. In this case report, we would like to draw attention to spinal cord compression in an oncology patient who was admitted to the emergency department because of motor dysfunction. SCC should be considered in such patients, and diagnosis and treatment should be accelerated.

Keywords

Vertebral Metastasis; Lung Cancer; Spinal Cord Compression; Oncologic Emergency

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Introduction

The World Health Organisation estimates that 10 million people were diagnosed with cancer worldwide in 2000 and cancer rates are expected to increase by 50% to 15 million by 2020 [1]. As the number of oncology patients increases, the rate of emergency department admission will also increase. Oncology patients may apply to the emergency department because of primary oncologic causes, such as pressure symptoms, pain, bleeding, or respiratory distress, or secondary oncologic causes, such as endocrine, hematologic, neurological, infectious, or metabolic disturbances or a combination of these [2]. At the same time, visits made to the emergency department by patients with cancermay be associated with oncologic emergencies. They can be life- threatening and have a high mortality rate. Rapid diagnosis and appropriate treatment of oncologic emergencies in the emergency room is important for saving lives. We report a spinal cord compression related to one vertebral metastasis of lung cancer, which is a rare oncologic emergency.

Case Report

A 61-year-old man was brought to the emergency service with the complaint of loss of strength in his legs. When he tried to go outside in the city to get tests for cancer, he couldn't walk for a three-hour period. Squamous cell lung cancer and liver metastasis were in his personal history. In the physical exam of the patient, he was cooperative, oriented, conscious and his general condition was good. Vital findings were stable. In the neurological examination, light reflex was +/+, pupils were isochoric, and there was no facial asymmetry. Cerebellar tests were successful. There was no neck stiffness. The muscle power of his legs was 1/5. The muscle power of the upper extremity was 5/5. Sensory loss was obtained at the thoracic 2 level. Below this level, all reflexes were lost (anal etc). There were no abnormal findings on examination of other systems. Laboratory findings were normal. In the magnetic resonance imaging (MRI) of the thoracal region, a compression fracture at the T2 level and a narrow spinal canal was seen. There was a mass lying to the right pedicle of T2 and the spinal canal, and it showed an invasion to the right half of the T2 corpus (Figure 1,2).

The patient diagnosed with metastatic SCC was admitted to the neurosurgery department for emergency decompression. In the operation, the mass was totally excised and decompression and posterior pedicular fixation were applied. The mass removed in the operation was sent to the pathology laboratory for histopathological examination. After the operation, the patient could move his legs and the muscle power obtained was 3/5. Histopathological diagnosis of the removed mass was consistent with metastatic squamous cell carcinoma.

Discussion

Bone is a common site of metastasis in lung cancer. It is reported that 30–40% of patients who have lung cancer will develop bone metastases during the course of their ailment [2]. The thoracic vertebrae are the most frequently involved sites, representing 70% of cases [3]. It is reported that 60–70% of patients with systemic cancer develop spinal metastasis, although only 10% are symptomatic [4]; 15.6% of symptomatic

Figure 1. Sagittal T2 weighted MR imaging scan demonstrating T2 vertebral compression fracture, narrowing of the spinal canal and cord compression.

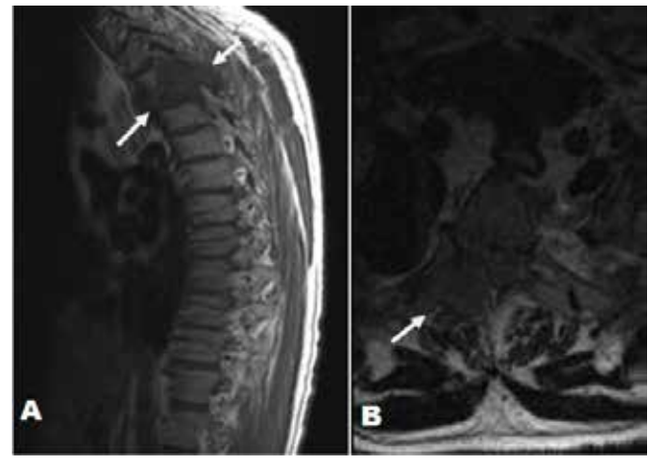

Figure 2. Sagittal T1 (A) and axial T1 (B) weighted MRI scans revealing the mass affecting the right half of the T2 vertebral body and right pedicle and extending into the spinal canal.

spine metastases are derived from lung cancer, as in ourcase. Spinal metastases can lead to a significant number of symptoms and complications such as severe bone pain, pathological fractures, and neurological dysfunction, such as loss of motor and organ function. Though rare, metastases may develop in the extradural space, causing spinal cord compression (SCC). SCC can lead to important morbidity and a decline in quality of life.

Squamous cell carcinoma is the form of lung cancer that mostly metastasizes to vertebrae. Most of the metastases involve successive multiple spinal levels, whereas single vertebral metastases are seen rarely, as in our case [5]. Some of these spinal metastases can result in SCC. SCC is the most serious complication that can take place in patients who have spinal metastasis and 3-7.4 % of cancer patients develop SCC [6]. It is a critical condition that requires emergency diagnosis and intervention to prevent loss of neurological function. Patients with SCC may present with various clinical symptoms, from mild motor dysfunction to paraplegia. On physical examination of patients, signs of systemic disease such as cachexia and anemia can be

seen. Signs of SCC such as varying degrees of weakness of muscles, bowel, bladder, sexual dysfunction, and loss of sensation can also be seen. So long as a significant neurological deficit is not present, early identification of SCC is often not established. Diagnosis of SCC with imaging methods is essential for treatment options. Several imaging modalities, such as plain X-rays, computed tomography, and magnetic resonance imaging (MRI) are useful in recognizing vertebral metastases, yet MRI is superior to the other methods for evaluating tumors of the spine and SCC [6]. Since we thought of SCC in the first place in our case, we performed an MRI as an initial diagnostic test. When SCC is diagnosed, treatment options are then considered. The primary aims of SCC treatment are preservation or improvement of neurologic function and improving quality of life, and pain relief [7]. The most commonly used treatment options are corticotherapy, radiotherapy, and surgery. Surgical indications can include bony compression and spinal instability [8]. Our patient also underwent surgical treatment. After the operation, the patient was discharged with improved neurological function compared with the preoperative status.

Conclusion

Oncology patients are frequently admitted to emergency services. Some of these patients can feel better with symptomatic treatment. A smaller number of these patients are at a high risk and this group should be diagnosed early and treated immediately.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

Conflict of interest

None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.

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